MODIS Team Meeting Minutes

Minutes of the MODIS Team Meeting held on Tuesday October 4, 1994.

Action Items:

94. Provide a detailed (high fidelity) analysis of scatter in the scan cavity. The results would determine the need for PF near field scatter measurements vs scan angle. Assigned to Guenther 8/23/94 Preliminary results due 10/15/94. Final due 2/28/95.

95. SBRC & GSFC to team to investigate possible corrections for the spurious response effects in the filters. Assigned to Waluschka 8/23/94. Due 10/25/94

97. Review the SBRC IR&D report on the Indium Bump process and provide comments on acceptability. Assigned to Roberto, Martineau, and Ellis 9/30/94. Due 10/ 4/94

98. Review August schedules and provide a summary of subsystem schedule status. Assigned to Davis, Ferragut, Waluschka, Martineau, Safren and Daelemans 8/30/94. Due 9/20/94. Waluschka, Martineau, and Safren have complied.

The following items were distributed:

1) Weekly Status Report #158
2) SBRC Memos submission from week #150
3) Minutes of the previous team meeting

Attendees:

Richard Weber	Bruce Guenther	✓ Larissa Graziani
✓ John Bauernschub	✓ George Daelemans	✓ Bob Martineau
Rosemary Vail	Patricia Weir	✓ Bob Silva
✓ Lisa Shears	Mitch Davis	✓ Robert Kiwak
✓ Mike Roberto	✓ Ken Anderson	Harvey Safren
✓ Nelson Ferragut	✓ Rick Sabatino	✓ Ed Knight
✓ Gene Waluschka	✓ Cherie Congedo	Harry Montgomery
Bill Barnes	Jose Florez	Marvin Maxwell
✓ Les Thompson	Gerry Godden	✓ Bill Mocarsky
	✓ Sal Cicchelli	

Team Technical Weekly October 14, 1994

General

The MODIS calibration working group meeting will be held on Tuesday, October 11, and the MODIS Science Team Meeting will be held October 12 thru 14. Both meetings are at the College Park Holiday Inn at Route 1 and the Beltway.

A review of the Performance Verification Plan/Specification is scheduled for October 17 and 18 at SBRC. A few GSFC MODIS personnel will be attending.

Gene Waluschka

- has latest optical model for MODIS instrument.

George Daelemans

George has documented the report of the results from the in-house MODIS twenty-five degree spacecraft (S/C) roll thermal study in a report dated September 29. The analysis was performed using the detailed thermal system model of MODIS to predict scan cavity temperature excursions during a S/C roll maneuver. The S/C was rolled from nadir by 25 degrees and back to nadir in one half orbit. During the roll, the cold side of the S/C was tilting away from the horizon. The analysis runs were made by Dan Powers. Several orbits were run before and after the roll period to characterize typical temperature profiles within the scan cavity. Four cases were run starting at midnight or solar noon and at beginning or end of life. The contribution of the roll to scan cavity temperature profiles were small compared to normal variations during an orbit.

Two electronics boards have been tested in thermal vacuum and a third board is scheduled to be tested the week of October 7.

There are one or two weeks of real work left before the thermal analysis of the SRCA is complete. There is a software package that is needed, so the total time needed is of the order of one month.

Les Thompson

Les will be Source Evaluation Board (SEB) chairman for the Landsat Ocean Color instrument.

Bob Martineau

SBRC has produced a document dated September 16 of data packs (#S04304) for the first tested PFM SCAs from each configuration. These were not necessarily the deliverable PFM SCAs and did show some failures. Each data pack included a cover sheet, data summary sheet, and detailed test data. The data packs were as follows:

Visible SCA103 conditionally passes. Bands 8 - 12 have 6% non-linearity at the first flux level. The requirement is equal or less than 5% non-linearity from a best fit of the instantaneous flux. This requirement is nearly impossible to meet at these low flux levels. An error analysis is being performed.

NIR SCA106marginally fails linearity on four bands at the last flux measurement. Will be considered for flight depending on results from other NIR SCAs.

S/MWIR SCA 103 marginally passes. Band 5 has two soft pixels and band 24 is close to the NEI spec. The SWIR bands fail linearity at the first flux level. Band 21 has one pixel that fails linearity at one flux level. This SCA will be baked and performance is expected to improve.

LWIR SCA #55334 This device fails and is not a candidate for PFM. Two pixels in band 27, 1 pixel in band 28, and one pixel in band 30 are unresponsive. Baking would not improve performance.

Larissa Graziani

Larissa and Bob Silva are looking into cleaning methods for paints with microspheres.

There are 6 to 8 week lead times to get a Cryogen QCM (CQCM). They run about $18 K ($10K for controller and $8K for crystal). One would be used for the EM and used again for the PFM. VIRS might be willing to split the cost with MODIS if they could also use the CQCM.

Rick Sabatino

There will be informal reviews of three of the five software modules for GSE System Test Equipment #1 (STE#1) in October.

Bob Silva

Bob is concerned about speed of the 1750 microprocessors for MODIS. About 13 MHz is needed and very few of these processors have obtained that speed.

Reviewing Performance Verification Plan/Specification.

Bob Kiwak

SBRC is getting new materials anodized for the blackbody calibrator. These materials will not be heated as hot as the previous materials. The previous heat treatment caused the cracking. SBRC is pretty sure they have the problem under control.

Quality assurance people here want to look at the anodize here to assure it is indeed okay. Bob has requested a witness plate for the new anodized material.

Bill Mocarsky

Bill mentioned the moveout of the OBA vibration was largely schedule related.

Mitch Davis

Dick Julian went to Torrence, CA with his replacement to meet with the power supply people on October 4.

SAM - Temperature testing done in air.

MEM - All boards are in place. Trouble shooting. Most problems packaging related. FIFO not properly mated to output connector. Microprocessor communications problems.

FAM - Temperature testing in air was scheduled to start October 3.

MODIS Mirrors Surface Roughness

There was a call from Tom Kampe on October 3. There is a memo written in August (Q04206) which summarizes approval for flight mirror surface finish and things of that sort. Terry Ferguson has done some other work (particularly references 6 and 7 from the August memo. The plan is to go with the scan mirror in the area of 18 to 20 Angstroms rms surface roughness. The afocal telescope and flat would be 10 Angstroms. The actual requirement will be a BRDF requirement.

Tom was at Tinsley yesterday to review test methods for aspheric element E3 for VIS and NIR and afocal telescope mirror testing. Tinsley has BRDF equipment in house.

SRCA Design and Analysis

There was a conversation with Eric Johnson on October 5. Some parts are already on order. A substantial number of parts will be on order by November and all piece parts will be on order by December. SRCA construction starts in November and will be complete in July, 1995.

Not all drawings have yet been released. Maybe 70% released; more will be released in November. We could get some drawings prior to official release.

The consensus now is that the complete SRCA will be built and I believe we should complete a Structural Thermal Optical (STOP) analysis of the SRCA by June of 1995 so we will be ready for the environmental testing of the SRCA.

Need for Second Bench Test Cooler

There was a message from Vern Alferd on October 6. The principal reason for the need for a second is because the current pert chart shows an overlap of the BTC being needed for PFM and Flight models. It is needed for integration and test alignment of one model while it is needed for ambient system tests of the other instrument.

A second reason is that SBRC wants a BTC with 0.2 K stability (PMMIR has 0.5 K stability which is acceptable so far).

Finally, PMMIR requires more temperature cycles. The focal plane people are not comfortable with many temperature cycles to change coolants a lot in the testing process. The second BTC will not require cryogen in a bottle.

Performance Verification Plan/Specification

On Friday, October 7, there was a GSFC review of the Performance Verification Plan/Specification. Attendees included Charles Dan, Scott Milne, Dick Weber, Ken Anderson, Bob Silva, Ed Knight, Bill Barnes, Tim Zukowski, Ernie Busboso, Nelson Ferragut, George Daelemans, Bill Mocarsky, Gene Waluschka, and Mike Roberto. It was a productive review with many comments.

Mike Roberto

October 7, 1994

MODIS Science Team Meeting

The MODIS Calibration Working Group held a session on October 11. This was followed by the MODIS Science Team Meeting on October 12 through 14. Presentations were made by Tom Pagano and Jim Young from SBRC and by several of our GSFC MODIS team members including Bruce Guenther, Dick Weber, Harry Montgomery, Gerry Godden, and Ed Knight.

The Algorithm Theoretical Basis Document (ATBD) for the MODIS Level 1B Algorithm was presented by Harry Montgomery and other members of the MODIS Algorithm Team.

Calibration Group action items from the May Science Team Meeting were discussed by Jim Young and Mike Roberto.

Performance Verification Plan/Performance Verification Specification Review

The review was held at SBRC on October 17 and 18. Attendees from GSFC included Dick Weber, Charles Dan, Scott Milne, Gene Waluschka, David Jones, Tim Zukowski, George Daelemans, Bob Silva, John Barker, and Mike Roberto. Duane Bates of SBRC Integration and Test is compiling comments on the document. The comments will be distributed to the GSFC MODIS team for final review before the document is updated.

Mike Roberto

October 24, 1994